

# **Draft Final Summary of Environmental Issues**

Prepared for

**King County International Airport**

Prepared by

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# **DRAFT FINAL**

## **Draft Summary of Environmental Issues King County International Airport Task 3 Report BLACK & VEATCH Waste Science, Inc. June 1995**

### **Executive Summary and Recommendations**

The scope of this report is to provide King County International Airport (KCIA) an overview of airport environmental issues / concerns and present recommendations for addressing the identified issues. Primary categories of airport activities were evaluated in respect to environmental requirements. The following overall recommendations result from the evaluation.

- Fully implement KCIA-developed Storm Water Pollution Prevention Plan (SWPPP)
- Develop a thorough airport program for establishing tenant environmental requirements, providing education, technical assistance, and tenant auditing for environmental compliance
- Revise tenant lease agreements to mandate compliance with environmental statutes, KCIA environmental requirements, and mandate reporting of all environmental releases and investigation results to KCIA
- Consider conducting an initial characterization of soil and groundwater quality at KCIA
- Consider negotiation of airport-wide groundwater use, soil and groundwater cleanup standards, and potential remedies with Ecology to support redevelopment.

A summary of the individual issues and recommendations identified for each primary category are presented in Table A-1 in Attachment A. Table A-1 also presents additional data requirements needed to pursue the recommendations.

A Preliminary Environmental Inventory drawing was produced as a result of this preliminary evaluation. The Environmental Inventory identifies areas of the airport based on types of environmental concerns that are associated with the type of activity that has or is occurring within the area. Five general activity categories were chosen for identifying environmental concerns. The categories include current fueling facilities, former fueling facilities, current aircraft and automobile maintenance facilities, current industrial facilities, and former industrial and commercial use. The Environmental Inventory is included in Attachment B.

## **1.0 Introduction**

This report has been prepared as the product of Task 3 of the Contaminated Property Evaluation Contract for services between King County International Airport and BLACK & VEATCH Waste Science, Inc. The scope of Task 3 was to provide the following:

- A brief overview of the airport environmental/contamination issues to be addressed in the next 2 to 3 years to keep the airport in good standing with environmental regulators;
- A summary of potential ways the airport could develop its environmental program;
- A checklist/guidelines for addressing environmental issues on other contaminated airport sites.

This report contains the results of a preliminary environmental evaluation of KCIA and is the result of interviews with KCIA employees, visual overview of facilities, and a review of the KCIA Storm Water Pollution Prevention Plan (Ref. 1). This report presents a summary of the present status at KCIA, issues/concerns resulting from the evaluation, and provides recommendations for future activities that will help KCIA maintain environmental compliance. This evaluation is based on preliminary discussions with airport staff and does not constitute a full investigation of KCIA environmental policies, programs, historical information, interviews with or audits of airport tenants. For this report, a number of primary categories of airport facility and activity types were listed which typically have related environmental concerns at airports such as KCIA. For the items on this list, the current status of environmental compliance was discussed with

airport staff and summarized. Airport activities were evaluated based on federal and state statutes and regulations. Additionally, potential issues and concerns regarding each item are raised in the report. The categories discussed include underground storage tanks (USTs), additional petroleum or solvent sources, hazardous materials storage, hazardous and solid waste disposal, aircraft deicing, aircraft and vehicle washing, fire protection, pesticide and herbicide usage, storm water, spills and spill prevention, water supply and sewer, air quality, hazardous building materials, and airport soil and groundwater quality. An evaluation of airport noise issues was not included in the scope of this report.

At the close of the report, general conclusions and suggested future actions regarding environmental compliance are listed.

## **2.0 Underground Storage Tanks**

### **2.1 Present Status**

Presently, there are numerous USTs located at KCIA that are used for aircraft and automotive fuel and waste oil storage. UST locations, sizes, contents, and construction information are summarized in current inventories created by Jeff Winter (Ref. 2; 3). KCIA does not presently own or operate any USTs that are regulated under Washington State UST Law. KCIA owns one remaining UST located at the maintenance shop that is exempt from Washington UST regulation because it is used for storing heating fuel (diesel). All other KCIA owned petroleum storage facilities are above-ground tanks. KCIA has three above-ground storage tanks (ASTs) that are used for airport vehicle fueling and for generator fuel purposes. Additionally, Boeing and the Federal Aviation Administration also own ASTs used for fueling purposes.

Tenants at KCIA own and operate all other active USTs. Tenants must acquire KCIA approval and provide a copy of UST plans before installing USTs at the site. KCIA maintains an inventory of tanks with a capacity greater than 1,000 gallons and periodically requires tenants with USTs to provide a recent copy of tank permits. The more recent KCIA lease agreements require that each tenant must maintain their USTs in accordance with UST regulations.

USTs are regulated federally under the Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (40 CFR, Part 281) and by Washington State under the Underground Storage Tank Regulations (Chapter

173-360 WAC). Releases from USTs are regulated under the Washington State Model Toxics Control Act Cleanup Regulations (Chapter 173-340 WAC).

No fuel delivery pipelines extend outside of the individual tenant occupied areas. Most aircraft fueling is conducted by fuel trucks that acquire fuel at storage facilities and deliver it to aircraft on the field. Some operators fuel their own aircraft directly from their own onsite storage facilities.

Many USTs used for fuel and waste oil storage have been removed from the airport in the past and in recent years (Ref. 1, p. 3). However, due to the age of the airport and the lack of UST reporting requirements in the past, it is possible that unknown USTs exist at the site.

During three tank removals at KCIA performed since 1987, contaminated soil has been removed with the tanks (Ref. 1, p. 3). Past tank removals did not likely include sample collection and analysis or the excavation and removal of contaminated soil because regulations did not require it.

## **2.2 Issues and Recommendations**

UST issues/concerns for KCIA include the following:

- Contamination from historic UST removals and unknown USTs,
- KCIA liability for contamination related to tenant-owned USTs, and
- KCIA policy for UST transfer at lease termination.

The lack of UST cleanup and reporting requirements in the past makes it likely that there is petroleum contamination present at KCIA from USTs that previously existed or still exist at the site. The location or concentration of the contamination is unknown at present but is a potential liability to future development. Development at known locations of UST sites that were decommissioned prior to cleanup requirements or areas where there is a possibility of the presence of an unknown UST may require a contingency for contaminant investigation, tank removal, or groundwater monitoring. Existing contamination could be a liability for future development or as a potential offsite source of contamination to adjacent properties or the Duwamish River, through groundwater transport.

The presence of numerous tenant owned USTs presents a significant concern because of the potential environmental liability for KCIA. Leaking USTs (LUSTs) have a potential to contaminate KCIA soil and groundwater. KCIA presently requires tenants to maintain USTs to the current regulated standards. However, KCIA does not require the

tenants to notify KCIA of a LUST or the results of a Site Check/Site Assessment done to investigate a LUST.

KCIA does not presently have a policy for tenant transfer of USTs to KCIA at lease termination. At the time of lease termination, KCIA should require all past records concerning the use, condition, and tightness of the tank be turned over to KCIA. KCIA should require a final tightness test and should review the tank documents before lease termination to verify that the tank is still in compliance with the current regulations. If the tank is not in compliance, KCIA should require that the tank be upgraded or removed before lease termination.

### **3.0 Additional Petroleum and Solvent Sources**

#### **3.1 Present Status**

There are numerous other potential sources of petroleum and solvent usage. The sources are primarily from aircraft and vehicle maintenance, fueling, and storage.

Aircraft maintenance is conducted by individual aircraft owners, commercial aircraft repair companies, and corporations that maintain their own air fleet. Aircraft maintenance is generally conducted in hangars or buildings, however, it also occurs outside on the airport apron or tiedown areas (Ref. 1, p. 4).

Fueling activities are conducted throughout KCIA properties. Primary aircraft fueling is conducted by refueler trucks that transport fuel from onsite USTs and dispense the fuel to planes where the planes are parked.

Approximately 466 aircraft are based at KCIA, most of which are stored in outside tiedown areas (Ref. 1, p. 4). Numerous KCIA and tenant support and employee vehicles are also stored or are present at the field. Minor leaks of lubricating oil and hydraulic fluid are common from such vehicles.

Presently KCIA provides one waste oil disposal area that consists of a small building housing 55-gallon drums for oil collection and subsequent disposal by KCIA. The waste oil disposal area provides secondary containment for the drums.

#### **3.2 Issues and Recommendations**

Aircraft storage and maintenance produce minor releases of oils and solvents which represent a limited potential for significant environmental impact at KCIA. However, guidelines for proper oil and solvent usage and disposal on KCIA property should be

developed, distributed to airport tenants, and enforced by KCIA personnel. These guidelines will reduce potential pollution impacts on KCIA storm water runoff and reduce the potential for contamination of soil and groundwater. Implementation of these guidelines would also help fulfill a goal of KCIA's Storm Water Pollution Prevention Plan (SWPPP) (see Section 10.0). Potential spills from aircraft and vehicle fueling do pose a significant environmental risk. Spills and spill prevention are discussed in Section 11.0.

The Boeing Company is the major industrial tenant at KCIA and is a potential source of petroleum and solvents, however, the magnitude of Boeing's impact is not known by KCIA. KCIA should evaluate the environmental impact that Boeing's past and present petroleum and solvent usage has had on KCIA property.

## **4.0 Hazardous Materials Storage**

### **4.1 Present Status**

Chemicals, including paints, cleaners, solvents, and petroleum products are stored by tenants and KCIA. These materials are stored both indoors and outdoors. Many tenants have separate outdoor covered and non-covered storage facilities to house these items. Much of this material is stored in 55-gallon drums (Ref. 1, p. 6).

KCIA has not inspected its tenants for environmental compliance including hazardous materials storage. Fire safety inspections are conducted by King County fire department officials with oversight by KCIA personnel and include an inspection of flammable materials storage, exit signage, sprinkler systems, and other fire code items. Each tenant has been directed by KCIA to comply with applicable regulations including spill prevention control, secondary containment, integrity and leak detection monitoring, emergency preparedness plans, and overfill protection (Ref. 1, Appendix F). KCIA has discussed initiating annual courtesy inspections of its tenants facilities as part of the SWPPP, however, no inspection program has been developed to date.

### **4.2 Issues and Recommendations**

Hazardous materials storage issues/concerns at KCIA include the following:

- Outdoor storage of chemicals and petroleum products,
- Proper indoor storage of chemicals and petroleum products, and
- Development of an inspection and education program.

KCIA recognizes that outdoor storage of chemicals and petroleum products could result in contaminant releases in rain water (Ref. 1, p. 6). Rain water falling on storage containers will rinse off residual contaminants or may collect on the top of a storage container and flow into the container. Once the container is full, the rain water and chemicals or petroleum will flow out of the container as more rain falls on the container. For this reason, chemical and petroleum storage areas should be housed within an enclosure or be covered to keep out rainfall. In recognition of the surface water pollution prevention benefits, KCIA's SWPPP states that tenants will be encouraged to cover chemicals items (Ref. 1, p. 6). Additionally, secondary containment may be appropriate at certain chemical and petroleum storage locations. Inadequate indoor storage practices may also produce releases to the environment. Improper container stacking or transport may produce spills that are released to the ground or floor drains if containment is not provided.

Chemical and petroleum storage may pose a significant environmental risk at KCIA. To reduce the risk, KCIA could develop and implement hazardous materials storage guidance and inspection program. The program could include courtesy inspections of tenant facilities to determine the types and quantities of chemicals that are being stored, inspections of storage containers and facilities, and recommendations regarding storage practices. Inspectors could provide information concerning regulations that cover chemical storage spill notification procedures, and community right-to-know requirements.

## **5.0 Hazardous and Solid Waste Disposal**

### **5.1 Present Status**

Hazardous and solid waste disposal are the responsibility of each individual tenant. In general, solid waste is handled by municipal solid waste disposal utilities and hazardous waste disposal is contracted individually by tenants. The Boeing Company operates a waste separation facility on the North Field. The facility handles waste from the Boeing Company only. For the report, it has not been determined whether the Boeing waste separation facility receives materials from other Boeing facilities.

### **5.2 Issues and Recommendations**

There are presently no substantial issues/concerns for hazardous and solid waste disposal at KCIA based on the information that has been provided. However, long term



hazardous and solid waste storage could potentially produce environmental impacts at KCIA. Therefore, KCIA personnel should be aware of any long term waste storage at the airport to eliminate any potential environmental impacts. Waste storage could be an additional aspect of an KCIA inspection and education program and would help eliminate any potential waste storage impacts. Additional information should be gathered concerning the Boeing separation facility to evaluate the potential environmental impacts produced by the facility and the origin of the waste stream.

## **6.0 Aircraft Deicing**

### **6.1 Present Status**

Approximately 1,500 gallons of ethylene glycol and propylene glycol deicing fluid were used at KCIA in 1992 (Ref. 1, p. 5). In 1993, KCIA directed tenants to conduct deicing activities in areas where the storm water and deicing fluid are contained for treatment (Ref. 1, Appendix C). However, in practice much of the deicing at KCIA is presently conducted on the airport apron and the residual deicing fluid is eventually transported to the storm water system.

Presently there are four approved KCIA aircraft wash pads that can be used for aircraft deicing. The wash pads contain residual deicing fluid and discharge it for treatment to the sanitary sewer. However, none of the KCIA wash pads are capable of handling aircraft with wing spans greater than 50 feet. The Boeing Company presently has the only area large enough to be able to collect residual deicing fluid from larger aircraft. An agreement exists between Boeing and United Parcel Service for use of the larger wash pad. However, other air cargo companies that employ larger planes do not have an agreement with Boeing for use of the larger wash pad.

Currently, runoff from the approved wash pads is discharged directly into the municipal sanitary sewer and transported to Metro's West Point treatment plant. However, during the permitting process for construction activities in Hangar 5, Metro expressed concern about the effect deicing fluid from KCIA could have on the treatment system. Metro stated that a surcharge could be required for discharge of deicing fluid due to the high biochemical oxygen demand of deicing fluid.

KCIA has not actively monitored compliance with the aircraft deicing directive. Therefore, KCIA does not know how much deicing activity is occurring without the collection and treatment of the residual deicing fluid. KCIA is planning to provide a

deicing pad on the KCIA terminal apron as part of implementing SWPPP programs. Provision of a deicing pad will allow KCIA to more effectively enforce and monitor compliance with the deicing directive.

## **6.2 Issues and Recommendations**

Deicing issues/concerns at KCIA include the following:

- Enforcement of a compliance program, and
- Provision of an adequate number of convenient areas for deicing activities.

A compliance program directed at ensuring that deicing occurs at designated areas needs to be developed. The program could include education concerning the technical and regulatory issues surrounding deicing activities. This program could also be used to gather additional information concerning deicing activities including quantity and type of deicing fluid being used, location of deicing activities, peak use quantities, and number of violations. The information that is gathered could be used to further identify the needs of the companies conducting deicing activities and the loading (BOD) capacity that could be produced by deicing at KCIA.

Deicing activities will occur in the areas where containment and treatment are provided if these areas are adequate in number and conveniently located. The wash pads that are presently designated for deicing activities are not conveniently located to some of the companies that use deicing fluids. Construction of deicing areas which are more convenient could be considered by both tenants and airport management to encourage compliance.

## **7.0 Aircraft and Vehicle Washing**

### **7.1 Present Status**

An unknown amount of aircraft and vehicle washing is being conducted outside of the designated wash pad areas at KCIA. Drainage from areas outside of the designated wash pads is discharged to the storm water system. Federal and State laws prohibit the discharge of wash water resulting from aircraft and vehicle washing into storm drainage systems.

The tenants have been directed by KCIA to conduct aircraft and vehicle washing in areas where the wash water will go into drains that are connected to the sanitary sewer (inside hangars, on designated wash pads, or washing vehicles at commercial car washing

businesses), to collect wash water and then dispose of it, or construct a wash pad at their facilities (Ref. 1, Appendix C). KCIA has not actively monitored compliance with the aircraft and vehicle washing directive. Therefore, KCIA does not know how much aircraft and vehicle washing is occurring in areas that discharge to the storm water system.

## **7.2 Issues and Recommendations**

Aircraft and vehicle washing issues/concerns at KCIA include the following:

- Enforcement of a compliance program, and
- Provision of an adequate number of convenient wash pads.

A compliance program directed at ensuring that aircraft and vehicle washing occurs at designated wash pads needs to be developed. The program could include education concerning the technical and regulatory issues surrounding aircraft and vehicle washing activities. This program could also be used to gather additional information concerning aircraft and vehicle washing activities including quantity and type of detergents being used, location of washing activities, peak use, and number of violations. The information that is gathered could be used to further identify the needs of the tenants conducting washing activities at KCIA.

Aircraft and vehicle washing will occur in the appropriate wash pad areas if these areas are adequate in number and conveniently located. The wash pads that are presently designated for washing activities are not conveniently located to some of the companies and tenants. Construction of wash pads which are more convenient could be considered by both tenants and airport management to encourage compliance.

## **8.0 Fire Protection**

### **8.1 Present Status**

Generally the fire protection systems at KCIA are water systems. However, there is a probability that foam agent fire protection systems are used by Boeing.

### **8.2 Issues and Recommendations**

There are presently no substantial issues/concerns for fire protection at KCIA based on the information that has been provided. KCIA should confirm that fire protection

residuals from foam agent fire protection systems, if used, are discharged to the sanitary sewer.

## **9.0 Pesticide and Herbicide Usage**

### **9.1 Present Status**

Presently, herbicides and pesticides such as Roundup, Surftan, Crossbow, Cassaron, and Malathion are used at KCIA to control vegetation growth and eliminate insects (Ref. 1, p. 7). Pesticides and herbicides are applied by a licensed pesticide and herbicide contractor. Tenants at KCIA maintain their own buildings and landscaping. Therefore, KCIA does not know the extent of pesticide and herbicide usage at tenant facilities.

### **9.2 Issues and Recommendations**

There are presently no substantial issues/concerns for pesticide and herbicide usage at KCIA based on the information that has been provided. KCIA is likely the largest user of pesticides and herbicides and contracts a licensed person for application. KCIA may require that airport tenants employ a licensed pesticide/herbicide applicator so that illegal substance (oil, etc) are not used and to ensure proper application and storage. KCIA should set pesticide and herbicide usage guidelines and educate tenants about the guidelines and the technical and regulatory issues surrounding pesticide and herbicide usage.

## **10.0 Storm Water**

### **10.1 Present Status**

KCIA is presently evaluating storm water drainage capacity at the field. Sajan, Inc. is conducting a capacity analysis of the storm water drainage system serving the northern 90 percent of KCIA and conducting a regulatory compliance review. The report is not finalized to date.

The capacity analysis has identified several areas that require additional storm water drainage to alleviate ponding of rain water. Additional oil/water separators for lines transporting storm water from the western portion of the field have been recommended to fulfill other regulatory requirements.

There are several outfalls that discharge storm water to the Duwamish River from KCIA property (Ref. 1, p. 1; 4). The northerly outfalls flow into portions of the Duwamish River that are areas of concern due to elevated metals and polychlorinated biphenyl concentrations. KCIA has received complaints concerning the discharge from the outfalls. In addition, the Boeing Company has observed oil in the storm water discharged from KCIA property.

KCIA has not conducted storm water sampling and chemical analyses to date. However, the Boeing Company has conducted storm water sampling and analyses on storm water that represents the combined flow from all KCIA property. KCIA does not have the results of Boeing's storm water sampling.

Both KCIA and its tenants have National Pollutant Discharge Elimination System (NPDES) permits. KCIA maintains 1 NPDES permit and KCIA tenants maintain nine. KCIA is the co-permittee on tenant storm water permits. Eight additional KCIA tenants submitted Notices of Intent for storm water permits. However, Ecology did not require storm water permits for the eight additional tenants (Ref. 1, pp. 1, 2). Storm water pollution control is regulated federally under the U. S. Environmental Protection Agency's National NPDES Permit Regulations (40 CFR Part 122) and in Washington State under Ecology's NPDES Permit Program (Chapter 173-220 WAC).

KCIA has prepared a Storm Water Pollution Prevention Plan (SWPPP) to meet the requirements of the airport's Storm Water Baseline General Permit. The purpose of the SWPPP is to identify areas of potential pollution affecting the storm water discharge at KCIA and to implement operational source control and treatment Best Management Practices (BMPs) which will eliminate or reduce the level of pollution entering storm water (Ref. 1, p. 1). Although KCIA has notified its permitted tenants of the SWPPP requirement and required permitted tenants to provide KCIA with a copy of the tenant SWPPP, not all of the tenants have produced a plan or forwarded a copy to KCIA.

KCIA recognizes that many other tenants not holding permits at this time conduct activities that impact storm water quality. The KCIA SWPPP states that airport managers will continue to inform tenants of storm water issues and will institute rules and procedures to reduce the storm water pollution potential created by tenant activities (Ref. 1, p. 3). KCIA has taken steps towards this goal by installing additional oil/water separators, mandating tenants to produce spill prevention plans and obtain emergency spill equipment, and by directing tenants to conduct deicing and washing activities in appropriated areas. All KCIA programs and procedures specified in the SWPPP need to be initiated to fully accomplish the goal.

## **10.2 Issues and Recommendations**

Storm water issues/concerns for KCIA include the following:

- Tenant SWPPPs and implementation of BMPs, and
- Full implementation of the SWPPP.

It is likely that tenants that have not produced a SWPPP, have not developed or instituted BMPs at their facilities. Additionally, tenants that have a SWPPP may not have instituted BMPs. Storm water from both groups of tenants may be impacting storm water that is discharged from KCIA. KCIA needs to remind the tenants of the storm water requirements including the SWPPP and BMPs and that they are required to provide KCIA with a copy of their SWPPP. A review of storm water permits, SWPPPs, and BMPs should become part of a KCIA tenant inspection program.

Additional KCIA programs and procedures specified in the SWPPP, including, tenant education and training, annual courtesy inspections of tenant facility activities that includes follow up on compliance with SWPPP, and biannual inspections of KCIA storm water management systems, need to be initiated. As KCIA recognizes, non-permitted tenant activities can impact storm water quality. Implementation of SWPPP programs and procedures should include all tenants of KCIA. Additionally, part of the SWPPP tenant educational program should include storm water regulatory and technical information but should also include regulatory and technical information on other potential sources of environmental contamination. Complete implementation of the programs, procedures, and BMPs outlined in the plan for all KCIA tenants, including non-permitted tenants, would reduce the environmental impact of tenants on KCIA property.

## **11.0 Spills and Spill Prevention**

### **11.1 Present Status**

Numerous aircraft and vehicle fueling activities take place at KCIA on a daily basis. KCIA has developed a spill response plan. KCIA has also directed the tenants and the fueling companies that service the airport to provide their own spill response plans and equipment. In addition, tenants and fuel companies are required to notify KCIA if a spill occurs at the field (Ref. 1, Appendix D).

Spill response procedures by the Airport Fire Department are constantly being improved. The current KCIA policy of fuel spills is to remove the fire hazard, contain the spill, then start cleanup where possible. Additionally, the Airport Fire Department

checks tenant fuel trucks, fuel storage tanks, and aircraft daily for leakage and checks for illegal oil and fuel disposal (Ref. 1, p. 3).

## **11.2 Issues and Recommendations**

There are presently no substantial issues/concerns for spills and spill prevention at KCIA based on the information that has been provided. However, KCIA could include spill prevention regulatory and technical information as part of a tenant educational program and could include a spill prevention evaluation as part of a tenant auditing program.

## **12.0 Water Supply and Sewer**

### **12.1 Present Status**

Presently KCIA is supplied with water by the Seattle Water Department. Two metered water lines enter KCIA from a water main located along East Marginal Way. One of the KCIA water mains runs through the Boeing Company facility before servicing other KCIA and tenant facilities. No potable water wells are present at the site. KCIA acts as a "mini water district," supplying water to tenants and billing tenants for the service.

Sewer service is supplied by the Municipality of Metropolitan Seattle (Metro). One sewer trunk line services KCIA from Airport Way and two lines service the airport from East Marginal Way.

### **12.2 Issues and Recommendations**

There are presently no substantial environmental contamination issues/concerns for water supply and sewer at KCIA based on the information that has been provided.

## **13.0 Air Quality**

### **13.1 Present Status**

Presently KCIA has two boilers that are permitted stationary sources and is applying for a permit for a paint booth. Additionally, Boeing's paint facilities are permitted air pollutant sources that are present at KCIA. KCIA is not aware of other tenants that have

permitted air pollution sources but believes that there may be tenant operated paint booths present at the airport.

### **13.2 Issues and Recommendations**

There are presently no substantial issues/concerns for air quality at KCIA based on the information that has been provided. Air quality issues regarding aircraft or vehicle emissions have not been addressed in this report.

## **14.0 Hazardous Building Materials**

### **14.1 Present Status**

At KCIA, the airport owns and leases some of the buildings, however, most of the buildings are owned by the tenants (Ref. 1, p. 2). At airport owned buildings, KCIA has developed a plan for asbestos abatement but has limited information concerning other hazardous building materials (lead paint, etc.). KCIA has in recent years developed a program that surveys and removes asbestos from airport buildings. KCIA maintains an annual budget for this program.

Upon termination of tenant leases, tenant buildings become KCIA property. KCIA presently does not have any information concerning hazardous building materials at tenant owned facilities.

### **14.2 Issues and Recommendations**

Hazardous building materials issues/concerns for KCIA include the following:

- Presence of other hazardous building materials in KCIA-owned buildings, and
- Hazardous building materials present at tenant-owned buildings.

The knowledge of what other hazardous building materials are present at KCIA-owned buildings is important for evaluating building maintenance, future use, and building renovation or demolition. For example, lead-based painted wood can pose additional health hazards during building maintenance, renovation, or demolition and a significant additional cost to dispose of the wood debris. Therefore, an additional hazardous building materials inventory may prove valuable.

At lease termination, KCIA will become the owner of tenant facilities. For liability and future leasing purposes, it is important for KCIA to have a knowledge of the type and quantity of hazardous building materials at the tenant facilities. KCIA could consider



including a policy in tenant leases that requires abatement of hazardous building materials prior to tenant lease termination and building transfer to KCIA.

## **15.0 Soil and Groundwater Quality**

### **15.1 Present Status**

There is limited data on known soil and groundwater contamination at KCIA. Data from UST removals on KCIA likely provide the largest quantity of soil and groundwater contamination information. There is known contamination information from UST removals conducted at the KCIA maintenance shop and terminal building, North Field Property leased to Boeing, and Flightcraft facility. There is likely more soil and groundwater contamination information from other UST removals that have been conducted on KCIA property.

KCIA is aware of three other specific sites on airport property at which soil or groundwater characterization and/or cleanup has occurred. These sites include the property south of the terminal leased for the Boeing EMF Facility, the fire training pit area south of the steam plant, and the steam plant site. Groundwater wells were not installed at the fire training pit or steam plant sites. Monitoring wells were installed at the Boeing EMF site as part of the characterization and cleanup.

Existing leases between KCIA and its tenants do not require reporting of soil or groundwater releases, characterization, or cleanup efforts. Therefore, it is likely that additional activities have occurred of which KCIA is not aware.

Many of the historic uses at KCIA properties have a strong probability of having caused releases of contamination to soil or groundwater. Additionally, several current activities could be of concern. Current or historic activities of concern include the following:

- Former industrial operation prior to pollution prevention regulations (e.g., World War II aircraft manufacture, former foundry locations, former steam plant operation)
- Former fuel storage facilities operated and closed prior to pollution prevention or cleanup requirements
- Several fuel storage facilities adjacent to East Perimeter Road were decommissioned in the 1960s and 1970s. Additionally, several properties

purchased by KCIA for runway extension were former fuel storage and gasoline station facilities.

- Former and current aircraft and vehicle maintenance areas.
- Current aircraft and vehicle fueling facilities. Several fixed base operators and corporate tenants have their own permitted underground storage tanks and fueling facilities. In addition, the primary aircraft fuel tank farm for the airport exists at the north end of the airport property. Groundwater monitoring is not occurring in the vicinity of existing fuel storage facilities.

## **15.2 Issues and Recommendations**

Soil and groundwater quality issues/concerns for KCIA include the following:

- Establishment of soil and groundwater cleanup standards for future redevelopment,
- Airport-wide soil and groundwater quality characterization, and
- Contamination reporting requirements.

Redevelopment of airport properties may be constrained or affected by soil and groundwater contamination. Both soil and groundwater cleanup standards should be determined for airport properties based on their proposed future use and the highest beneficial use of area groundwater. Negotiation of the highest beneficial use status for groundwater in the vicinity of KCIA could be considered in the near term. Airport-wide soil and groundwater cleanup standards could be negotiated with Ecology based on future airport use and groundwater use determinations. Contaminant releases to soil and groundwater and soil and groundwater cleanup requirements are regulated by Ecology's Model Toxics Control Act Cleanup Regulations (Chapter 173-340 WAC).

Based on an industrial future use, negotiated cleanup standards for soil and groundwater would most likely be much more cost effective than direct application of MTCA cleanup criteria.

Initially, the highest beneficial use of groundwater is assumed to be for drinking water purposes unless it can be proven otherwise. If the highest beneficial use of groundwater is not for drinking water purposes, it would be the groundwater's affect on adjacent surface waters in the Duwamish River. Along with negotiation of groundwater cleanup standards, an airport-wide agreement for soil cleanup standards could be negotiated with Ecology. These two agreements would assist in defining cleanup requirements for the airport area in advance of redevelopment planning, thereby adding

predictability to the cost of redevelopment efforts. A joint process with Boeing could be considered for negotiation of soil and groundwater cleanup standards.

Initial characterization of soil and groundwater quality throughout the airport area could be necessary to support negotiations of a soil and groundwater cleanup standards. An initial characterization of groundwater may be prudent to determine whether groundwater contamination is of concern, and if so, whether off-site migration is a potential. Additionally, existing soil and groundwater contamination monitoring results could be summarized based on tenant input. Tenant input may include UST Site Assessment Reports and/or other environmental compliance sampling.

Contaminant releases by tenants of KCIA property present a significant concern because of the potential environmental liability for KCIA. Reporting requirements for tenants regarding soil and groundwater contamination issues should be added to lease agreements. Ecology has specific reporting requirements for contaminant releases. Similarly, KCIA should require notification when contaminant releases occur on airport property. Additionally, tenants should be required to provide the results of any environmental investigations conducted on KCIA property. KCIA could become liable for future cleanups of contamination for non-viable tenants or for future cleanups of residual contamination. Therefore, it would be prudent for KCIA to maintain copies of all contaminant release information.

## **16.0 Recommendations**

This section provides a description of the Environmental Inventory and a summary of the recommendations presented in the previous sections. Additionally, this section provides suggestions of ways to implement the recommendations.

The following five specific recommendations result from the preliminary evaluation of KCIA:

- Fully implement KCIA developed SWPPP;
- Develop a thorough airport program for establishing tenant environmental requirements, providing education, technical assistance, and tenant auditing for environmental compliance;
- Revise tenant lease agreements to mandate compliance with environmental statutes, KCIA environmental requirements, and mandate reporting of all environmental releases and investigation results to KCIA;

- Consider conducting an initial characterization of soil and groundwater quality at KCIA; and
- Consider negotiation of airport-wide groundwater use, soil and groundwater cleanup standards, and potential remedies with Ecology to support redevelopment.

Much of the preventative activities that would reduce potential contamination and associated environmental liability for KCIA are established in KCIA's SWPPP. The SWPPP contains source control BMPs for most of the primary activity categories that are evaluated in this report and includes implementation of additional programs and procedures (education and auditing) (Ref. 1, p. 14 to 16). Complete implementation of the BMPs outlined in the plan for all KCIA tenants, including non-permitted tenants, would reduce the environmental impact of tenants on KCIA property.

An airport education, technical assistance, and auditing program could be the corner stone for reducing tenant environmental impacts on KCIA property and is a large part of fully implementing the SWPPP. By providing education and auditing on UST requirements, solvent usage and disposal, hazardous materials storage and disposal, aircraft deicing, aircraft and vehicle washing, pesticide usage, storm water management, spill prevention, soil and groundwater quality, or any other activity that can impact the environment, both the environmental impacts from these activities and the long-term environmental liability of KCIA would be reduced. The program could be implemented incrementally by KCIA; prioritizing the development of the program on tenant activity types that have the largest potential environmental impact. The implementation of the program would most probably require the addition of a full-time environmental compliance officer. Additionally, present KCIA staff including security, fire, and/or police staff could be trained in environmental audit functions.

KCIA tenant and lease agreements should be revised to include compliance with environmental statutes, KCIA environmental requirements, and should include environmental reporting requirements to KCIA. Lease agreements should include UST transfer procedures at lease termination. Included in the transfer procedures would be a transfer of all tank use, condition, and testing information. Lease agreements should mandate compliance with applicable environmental statutes and proper procedures for hazardous materials use, storage, and disposal, aircraft deicing, aircraft and vehicle washing, pesticide usage, storm water management, spill prevention, air quality, and soil and groundwater quality protection. Additionally, lease agreements should include a

clause requiring the reporting of all contaminant releases to the environment and environmental investigation results to KCIA.

KCIA could consider conducting an initial characterization of soil and groundwater quality at the airport to support future negotiations of soil and groundwater cleanup standards and reduce potential future liability exposure. Existing soil and groundwater contamination monitoring results could be gathered from tenants and samples could be collected from existing monitoring wells. Tenant results may include UST Site Assessment Reports and/or other environmental compliance sampling.

KCIA should negotiate groundwater use, soil and groundwater cleanup standards, and potential remedies with Ecology. By establishing the cleanup levels and remedies, KCIA can streamline and reduce the cost and uncertainty of future redevelopment.

## **17.0 References**

- (1) King County International Airport, Storm Water Pollution Prevention Plan, Prepared by Jeffrey W. Winter, P.E., November 1993.
- (2) Storage Tank Inventory (Boeing Co. not included), King County International Airport, April 8, 1994.
- (3) North Boeing Field, WDOE Permitted USTs, October 18, 1993.
- (4) Storm Drainage Map, King County International Airport, October 28, 1993.

**Attachment A**  
**Summary of Issues, Recommendations,**  
**and Additional Data Requirements**

Table A-1  
Summary of Findings

Section	Title	Issue / Concern	Recommendation	Data Needs
2.0	Underground Storage Tanks	Potential Contamination from historic UST removals and unknown USTs	Provide contingency for contaminant investigation/cleanup when development occurs in known historic UST removal location or potential UST location	Collection of information concerning potential and former UST locations
		Potential KCIA liability for contamination related to tenant-owned USTs	Require notification for any leaking tanks and the results from any UST site assessments conducted at KCIA	None
		No policy for UST transfer at lease termination	Establish policy that requires UST condition, records, final tightness test, and tank upgrade or removal at lease termination	None

Table A-1 (Continued)  
Summary of Findings

Section	Title	Issue / Concern	Recommendation	Data Needs
3.0	Additional Petroleum and Solvent Sources	Potential environmental impact from petroleum and solvent usage	Establish guidelines for proper oil and solvent usage / disposal for distribution to tenants and KCIA enforcement	None
		Potential environmental impact from Boeing petroleum and solvent usage	Evaluate environmental impact from Boeing petroleum and solvent usage	Boeing contaminant investigation reports and documentation
4.0	Hazardous Materials Storage	Potential contaminant releases from outdoor storage of chemical and petroleum products	Encourage indoor storage and secondary containment for chemical and petroleum products	None
		Potential contaminant releases from improper indoor storage of chemicals	Develop hazardous materials storage guidance and a courtesy tenant inspection program	None
5.0	Hazardous and Solid Waste Disposal	Potential environmental impact from long-term waste storage	Monitor waste storage activities to identify any possible waste storage	None



Table A-1 (Continued)  
Summary of Findings

Section	Title	Issue / Concern	Recommendation	Data Needs
6.0	Aircraft Deicing	Deicing is occurring in non-designated areas	Establish program to enforce use of designated deicing areas in compliance with KCIA deicing directive	None
		Inadequate number of conveniently located deicing pads	KCIA tenant construction of conveniently located deicing pads	Information concerning adequate number and proper location of new deicing pads
7.0		Aircraft / vehicle washing is occurring in non-designated areas	Establish program to enforce use of designated wash pads in compliance with KCIA directive	None
		Inadequate number of conveniently located wash pads	KCIA tenant construction of conveniently located wash pads	Information concerning adequate number and proper location of new wash pads

Table A-1 (Continued)  
Summary of Findings

Section	Title	Issue / Concern	Recommendation	Data Needs
8.0	Fire Protection	None	None	None
9.0	Pesticide and Herbicide Usage	Potential environmental impact from improper tenant use of pesticides and herbicides	Establish pesticide and herbicide application guidelines or require tenants to contract a licensed applicator	None
10.0	Stormwater	Tenants have not developed SWPPPs or implemented BMPs	Remind tenants of SWPPP and BMP requirements including providing a copy of their SWPPPs to KCIA.	None
		KCIA's SWPPP has not been fully implemented	Fully implement KCIA SWPPP	None
11.0	Spills and Spill Prevention	None	None	None
12.0	Water Supply and Sewer	None	None	None
13.0	Air Quality	None	None	None

Table A-1 (Continued)  
Summary of Findings

Section	Title	Issue / Concern	Recommendation	Data Needs
14.0	Hazardous Building Materials	Potential presence of hazardous building materials other than asbestos in KCIA buildings	Evaluate and inventory presence of any other hazardous building materials	Information concerning presence of hazardous building materials in KCIA buildings
		Potential presence of hazardous building materials in tenant-owned buildings that will become KCIA property at lease termination	Establish policy requiring hazardous building materials abatement prior to lease termination	None
15.0	Soil and Groundwater Quality	No established soil or groundwater cleanup standards for KCIA property	Establish soil and groundwater cleanup standards with Ecology based on future use and and highest beneficial use of groundwater	Knowledge of future use planning and evaluation of KCIA groundwater to establish highest beneficial use
		Limited information existing on soil and groundwater quality	Conduct initial airport-wide soil and groundwater characterization	Existing tenant and KCIA soil and groundwater quality data and additional soil and groundwater data collection if required
		No established policy requiring tenants to notify KCIA of contaminant releases	Establish tenant contaminant reporting requirements	None

**Attachment B**  
**Preliminary Environmental Inventory**

